

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

A41

R17

AD-53 Bookplate
(1-63)

NATIONAL

**A
G
R
I
C
U
L
T
U
R
A
L**



LIBRARY A41

88626 : R17

SEP 21 1965

C & R-PREP.

THE STATUS OF THE STATE-FEDERAL TUBERCULOSIS ERADICATION PROGRAM

by A. F. Ranney* D.V.M., M.S.

Presented at the Sixty-eighth Annual Meeting
United States Livestock Sanitary Association
Memphis, Tennessee
October 22, 1964

In another year, 1965, we will be crossing the quarter of a century line since this country was declared a Modified Accredited Area for bovine tuberculosis. As we end this period we realize more than ever that we have lived with a low degree of bovine tuberculosis for an extended time. We have experienced more years with a low degree of infection than the number of years taken to gain this status.

As we enter the final year in this quarter of a century we can see steady progress in the elimination of this much dreaded disease. At the same time if we take a good look there is much left to be done to free this nation of bovine tuberculosis.

Based on last year's recommendations of this association, areas accredited free of bovine tuberculosis in the domestic bovine have been established. On June 30, 1964, 426 counties in 18 states and Puerto Rico were listed in this category as follows: Alabama 36, Idaho, 24, Indiana 21, Kentucky 62, Louisiana 8, Maine 12, Massachusetts 3, Michigan 10, Mississippi 36, New Hampshire 8, New York 6, North Carolina 52, Ohio 4, Oklahoma 28, Tennessee 56, Utah 9, Washington 20, Wisconsin 2, and Puerto Rico 29. Figure 1

*Dr. A. F. Ranney, Chief Staff Veterinarian, Tuberculosis Eradication, Cattle Diseases, Animal Disease Eradication Division, Agricultural Research Service, United States Department of Agriculture, Hyattsville, Maryland.

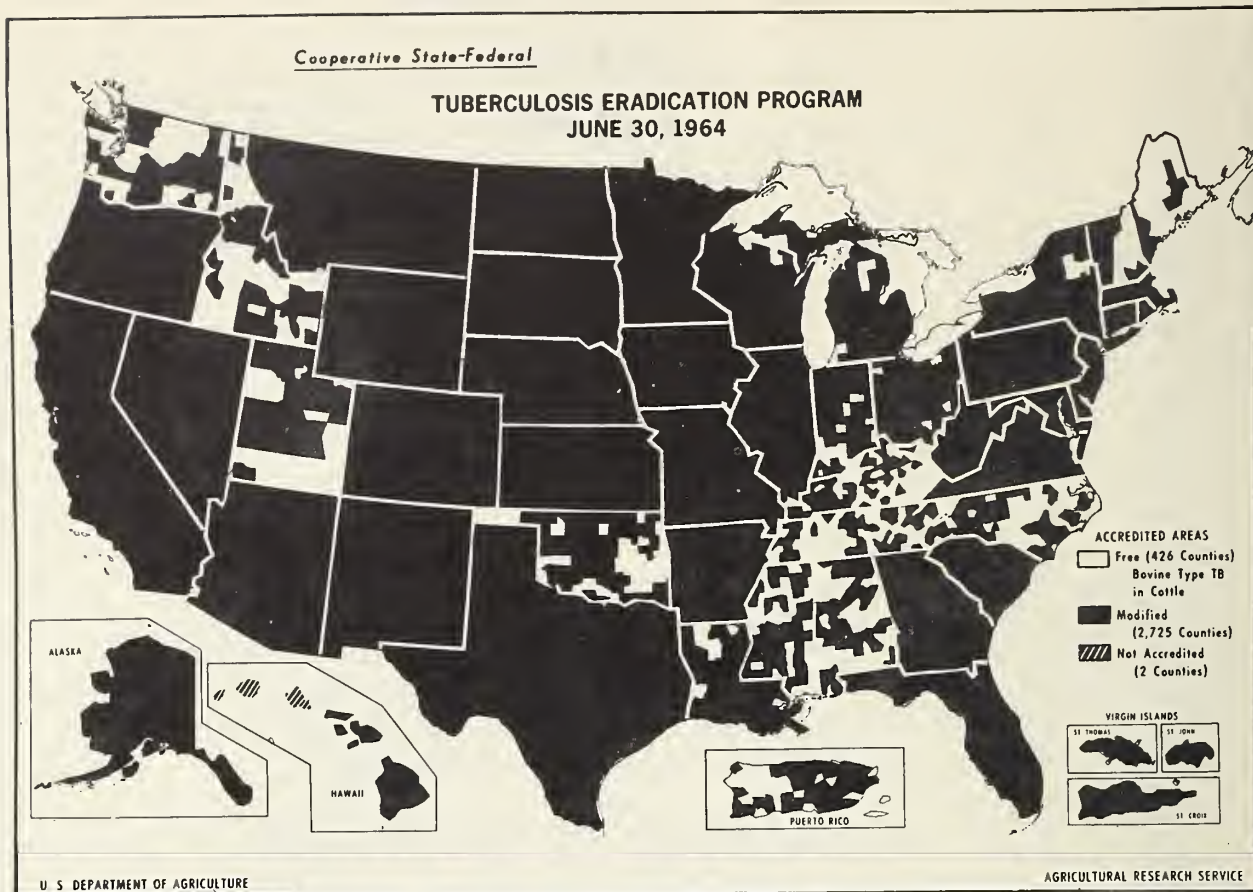


Figure 1

It is encouraging to report that Livestock Sanitary Officials generally reviewed their records very carefully, as well as a review of requirements initiated by this organization for setting up and maintaining this status.

Lest we give so much attention to progress that we become complacent and get the impression that our job is done, the modified accredited counties where one or more herds were found to have infection indicative of *M. bovis* in FY 1964, are shown in figure 2. A total of 184 such herds were located in 122 counties in 30 states and Puerto Rico. It will be noted that in several cases these counties are adjacent to or completely surrounded by counties listed in the free status. This should constantly remind us that there is enough widely scattered bovine tuberculosis to be a constant threat to all areas of the country.

TUBERCULOSIS ERADICATION PROGRAM

Cooperative State-Federal



COUNTIES IN WHICH LESIONS (INDICATIVE OF BOVINE TB) WERE REPORTED
 ■ 122 COUNTIES (184 HERDS) FISCAL YEAR 1964

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

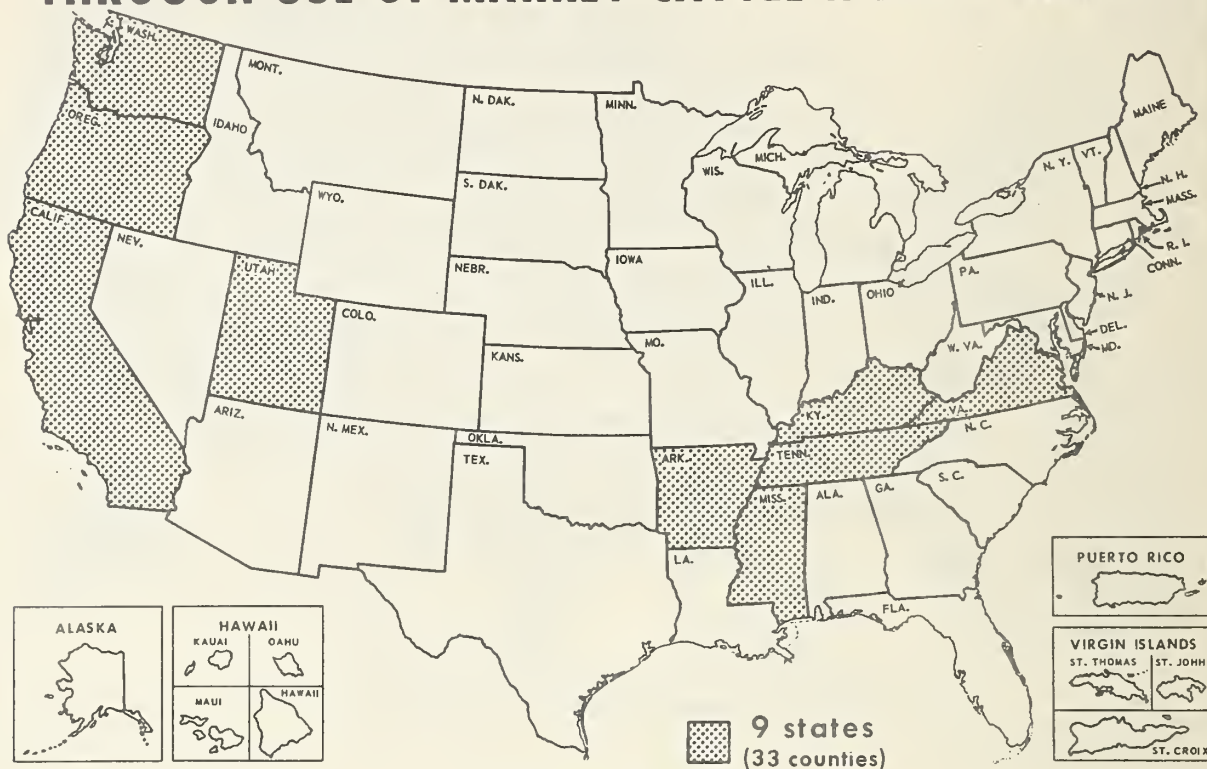
Figure 2

For many years our committee on tuberculosis has considered animal identification and traceback and has pointed out that these are essential procedures in effective and economical tuberculosis eradication.

Improved methods for the identification of market cattle through slaughter is receiving increased emphasis. As shown in figure 3, nine states have developed systems for identification that are adequate to fulfill the requirements of the program for area status. A total of 33 counties in nine states have been reaccredited based on data from these procedures.

Of much greater importance than fulfilling the requirements for area status is being able to readily trace to their herds of origin all animals found tuberculous at time of slaughter. We are constantly examining very critically our capabilities in this regard.

STATES WITH COUNTIES REACCREDITED THROUGH USE OF MARKET CATTLE IDENTIFICATION



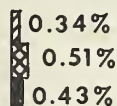
PREPARED JUNE 30, 1964.

U. S. DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

Figure 3

As illustrated in figure 4, 31.5 per cent of the lesion cases reported among reactors during FY 1964 were found as a result of testing herds to which lesion cases found on regular kill meat inspection were traced. It will also be noted that there has been a steady increase in the percentage of these lesion cases found as a result of traceback in the past three years. The results of testing infected herds located by this method in comparison to those tested for other reasons shows conclusively that this phase of the program deserves the high priority assigned to it by this association in 1961. While we realize that there are some extenuating reasons for delays in completing traceback cases, some of the investigations have been unduly delayed.

Tuberculosis Eradication**RESULTS OF ADE 6-35 INVESTIGATION****CATTLE TESTED****REACTORS FOUND****LESION REACTORS DISCLOSED**

% OF U. S. TOTAL

1962

1963

1964

U. S. DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

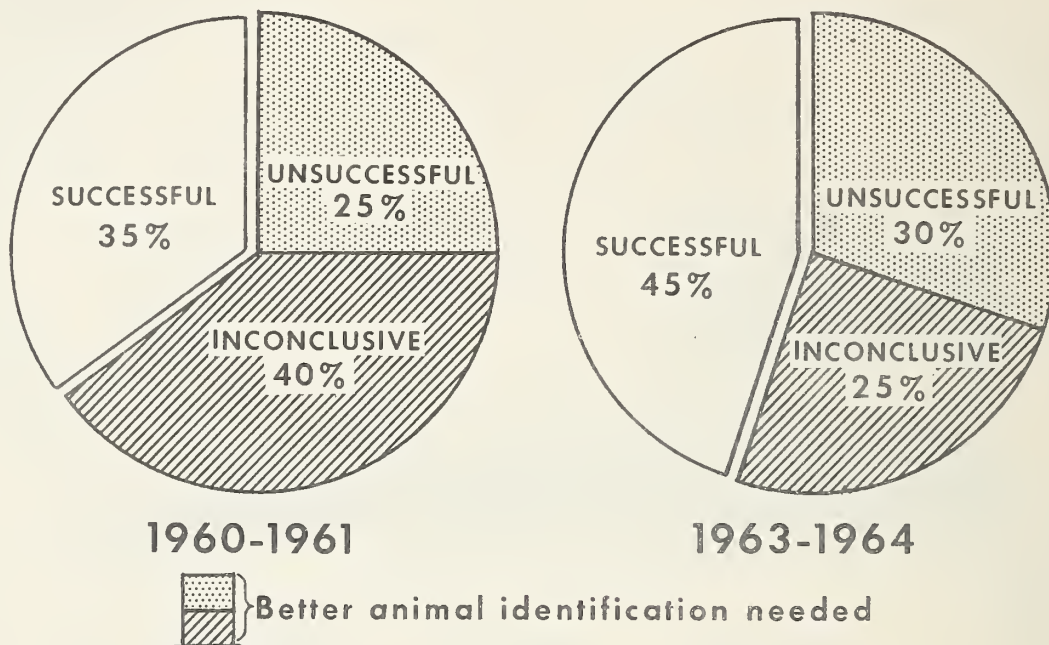
Figure 4

In view of the demonstrated value of prompt and diligent follow-up, these cases merit special attention.

In the Fy 1963 approximately 67 per cent of the regular-kill lesion cattle were reported with identification tags, brands, or tattoos whereas only 58 per cent were reported in 1964 with any of those identification symbols. Thus, in 1964, there was an increase in the percentage of unsuccessful cases as a result of no identification symbols (tags, brands, or tattoos.) Figure 5

Tuberculosis Eradication

TRACEBACK OF TB CATTLE



U. S. DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

Figure 5

It is encouraging to note, however, that there are fewer inconclusive cases. This is attributed to the development of better record systems for identification tags issued and applied; and to improvements in the identification records of cattle handled at markets and by dealers. In several states outstanding results were obtained in identifying contact herds by using the records associated with ear tags and the records of sales tags at markets.

The mechanization in existing slaughtering plants and in the planning of new plants is very progressive from the packers standpoint of efficient operation. During the past year the number of Federally inspected plants that have "on the rail" equipment for hide removal has increased approximately eight per cent. These mechanized changes do not generally include provision for maintaining the identity of the hide with the carcass until inspection is complete. It has been demonstrated many times that the hide is an essential factor in obtaining the history of a diseased animal. This is especially important when the animal has been included in the mass movement of cattle through dealers and markets.

The benefits of brands, ear tags, sale tags, breed and color markings are carried by the hide and they are frequently completely lost because the hides have been moved to another location before meat inspection is completed. Approximately 80 per cent of cattle slaughtered in this country receive Federal inspection. About 42 per cent of the cattle slaughtered under Federal inspection during the past year was handled in establishments where the hide was separated from the carcass before inspection was completed.

Concentration on "Red Flag" herds was appropriately placed at the head of the list of items for priority attention by this association three years ago. The special attention given to these herds has contributed much to the eradication effort. Not only have we reduced the number of herds in this category from 239 in 1960 to 29 in 1964, but significant data has been developed that should be of assistance in better program planning.

The elimination of all cattle in a limited number of "Red Flag" and other selected heavily infected herds, with State and Federal indemnity for exposed non-reactors, has been beneficial to the program as evidenced by the figures cited.

Eight herds in five states have been liquidated for slaughter since the revision of the Federal regulations May 17, 1963, (Part 51.9 (d) (3)) to permit payment of federal indemnity along with State indemnity for exposed non-reactor cattle.

Following are some pertinent data on these 8 herds:

		Average per herd
(1)	Average length of time these herds were known to be infected	5 years
(2)	Number of animals in these herds	749 <u>1</u> / 93
(3)	Number of reactors revealed	518 65
(4)	Number of herd tests applied	102 13
(5)	Number of non-reactors on which indemnity was paid	337 42
(6)	Number of herds in which non-reactors had lesions of tuberculosis	3

		Average per herd
(7)	Number of non-reactors with tuberculous lesions	18 6
(8)	Indemnity (State and Federal) on reactors	\$36,260 <u>2</u> / 4532
(9)	Cost for testing and supervising the removal of reactors	\$22,440 <u>3</u> / 2805
(10)	Cost for indemnity and eradication procedures for reactors	\$58,700 7337
(11)	Indemnity on non-reactors	\$23,645 2955
(12)	Cost for indemnity (reactors and non-reactors) plus expenditures for eradication procedures	\$82,345 10,293
(13)	Estimated costs for indemnity and eradication expenditures if these herds had been liquidated when first found infected	\$53,840 6730
(14)	Estimated savings if these herds had been liquidated when tuber- culosis was first detected	\$28,505 3563

1/ Based on largest number on any one test

2/ Estimated on the basis of \$43 State indemnity
and \$27 Federal indemnity where actual data
were not available

3/ Estimated amounts include salaries of testing
veterinarians, travel costs, supervision of
cleaning, disinfection and processing of claims

Two points should be kept in mind: (1) Locate tuberculous herds and free them from infection before they get into the "Red Flag" category and (2) Clean up these herds without endangering non-infected herds.

Let us consider a few of the significant factors gleaned from the above data.

- (1) The ratio of total reactors to number of animals in these herds is 7 out of 10.
- (2) In spite of repeated tests 18 of the non-reactors from three of the eight herds were found to have lesions of tuberculosis.
- (3) The amount paid for indemnity for non-reactors was approximately two-thirds the indemnity costs for the reactors removed.
- (4) Approximately one-third of the total expense (State and Federal) would have been saved had these herds been liquidated when tuberculosis was first discovered.
- (5) The above data does not include the frustrations, financial losses and other problems of the owners of the herds infected for extended periods or the infection that may have been transmitted to non-infected herds to perpetuate the disease and thus seriously delay the eradication of bovine tuberculosis.

In reviewing the records for the 26 herds presently in the "Red Flag" classification it is noted that 16 were released from quarantine a total of 21 times only to be found infected again at a later date. Study of the average unquarantined period suggests that there have been 26 herd years of unquarantined infection. One can only speculate as to the number of infected animals that may have been sold from these herds to find their way into previously uninfected herds during these 26 unquarantined years. In some instances owners have dispersed their herds as soon as the quarantine was removed.

An example of what sometimes occurs centers around a "Red Flag" herd that was released from quarantine following the required two negative tests. Eleven months later a cow that showed slight lesions of tuberculosis on slaughter was traced through another herd to the previously "Red Flag" herd. A retest of the former "Red Flag" herd revealed 91 reactors, 43 of which had lesions of tuberculosis.

A further follow up resulted in finding a lesion reactor in another herd that was purchased from the "Red Flag" herd while it was out of quarantine. This case not only points up the danger of "Red Flag" herds being released from quarantine too soon but also the value of our identification and traceback system which we must constantly strive to improve.

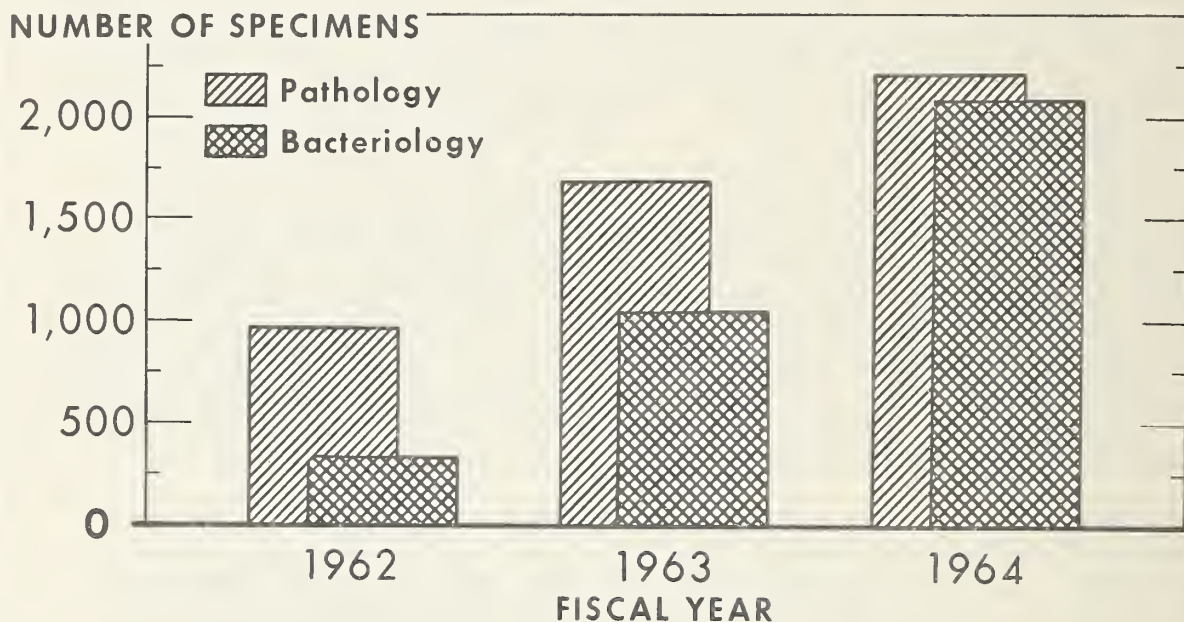
The benefits derived from epidemiological investigations and definitive laboratory examinations of tuberculous lesions are being recognized as essential to tuberculosis eradication. Bovine tuberculosis is exceedingly difficult to differentiate from other types of tuberculosis and from atypical mycobacterial infections even with the best of field and laboratory procedures. Atypical mycobacterial infections are being differentiated more and more effectively. This permits the release of

personnel and funds for concentration on herds infected with bovine tuberculosis.

The increase in the number of specimens submitted to the National Disease Laboratory at Ames, Iowa, is illustrated in figure 6.

Tuberculosis Eradication

SUSPECTED TB SPECIMENS EXAMINED (NADL)



U. S. DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

Figure 6

Improved procedures developed by laboratory personnel for collecting, shipping, and handling of tissues at the laboratory are resulting in a more frequent definitive diagnosis. Definitive diagnosis is vital to field personnel especially those concentrating on epidemiology as a prime factor in bovine tuberculosis eradication.

Avian tuberculosis is a threat to the overall tuberculosis eradication effort. Under the Federal Meat Inspection system generalized tuberculosis was reported in approximately 7,000 swine in FY 1964. Further almost one and one-half million swine carcasses were retained.

Avian tuberculosis in poultry is believed to be a major source of swine tuberculosis and continues as a costly industry problem. In calendar year 1963 over 376,000 mature chickens were condemned because of tuberculosis.

Producers have not shown concern about avian tuberculosis. This indifference only multiplies the dangers of the problem.

Epidemiologists are being trained to re-orient the program toward intensive work on known infected herds. With bovine tuberculosis as with human tuberculosis, most of the infected population is to be found in highly infected pools. From these pools satellite pools are created as livestock move into trade channels. The epidemiologists are aiding in the elimination of pools and location of satellites.

The number of cattle tested during the fiscal year 1964, 8.2 million, was approximately the same as for the prior year, 8.3 million. The percentage of reactors was the same for each year (0.10 per cent.) Testing for area and herd reaccreditation accounted for 89 or 48 per cent of the 184 herds with infection indicative of bovine tuberculosis. These data support the conclusion reported last year; in areas with a relatively high incidence of bovine tuberculosis, it is unsafe to abruptly curtail routine testing until other procedures for locating tuberculosis have proven to be an adequate substitute.

This organization does not need to be reminded that interest in bovine tuberculosis has been built up during recent years. We may anticipate that continued vigilance during the last year of this quarter century of modified accredited status will result in more noticeable progress than in any year since 1940.

NATIONAL AGRICULTURAL LIBRARY



1022713461